

CRITICAL PATH ROADMAP DISCIPLINE(S)	PRIMARY SPECIES / TYPE	SPACE FLIGHT EXPERIMENT TITLE	NASA OBPR - TASK BOOK							
			Year Experiment Was Listed in Book							
			1995	1996	1997	1998	1999	2000	2001	2002
Advanced Life Support; Clinical Capabilities; Environmental Health	Air	Analysis of Volatile Organic Compounds on Mir Station	1995	1996	1997	1998	1999			
Advanced Life Support; Clinical Capabilities	Air	Electronic Nose				1998				
Advanced Life Support; Clinical Capabilities; Environmental Health	Air	Trace Chemical Contamination; Trace Chemical Contamination of Spacecraft Air	1995	1996						
Advanced Life Support; Clinical Capabilities; Environmental Health	Microbe	Automated Use of DNA Probes for Rapid Detection of Bacteria in Water			1997	1998	1999	2000		
Advanced Life Support	Microbe	Immobilized Microbe Microgravity Water Processing System (IMMWPS); Immobilized Microbe Microgravity Water Processing System (IMMWPS) Flight Experiment						2000	2001	2002
Advanced Life Support	Microbe	Microbial Cellulose Assembly in Microgravity	1995							
Advanced Life Support; Immunology, Infection & Hematology	Microbe	Microbial Interaction in the Mir Space Station Environment		1996	1997	1998	1999			
Advanced Life Support; Environmental Health	Microbe	Microbial Investigations of the Mir Station and Crew			1997	1998				
Advanced Life Support	Plant	Application of Physical and Biological Techniques in the Study of the Gravisensing and Response System of Plants		1996	1997	1998	1999	2000	2001	2002
Advanced Life Support	Plant	Cellular Mechanisms of Spaceflight Specific Stress on Plants			1997	1998				
Advanced Life Support	Plant	Determining the Complex Organizational Nature of Phenolic Radical-Radical Coupling Networks in Vascular Plants: Evolutionary and Gravitational Significance							2001	
Advanced Life Support	Plant	Development of a Microgravity-Rated Hydroponic Nutrient Delivery System							2001	
Advanced Life Support	Plant	Development of a Microgravity-Rated Hydroponic Plant Culture Apparatus					1999	2000	N/A	2002
Advanced Life Support	Plant	Development of Gravity Sensitive Plant Cells (Ceratodon) in Microgravity			1997	1998	1999	2000		
Advanced Life Support	Plant	Developmental Analysis of Seeds Grown on Mir			1997	1998				
Advanced Life Support	Plant	Differentiation and Tropisms in Space-grown Moss (Ceratodon)		1996	1997	1998				
Advanced Life Support	Plant	Early Development of Fern Gametophytes in Microgravity			1997	1998	1999	2000	2001	2002
Advanced Life Support	Plant	Effect of Microgravity on Raphanus sativus L. in Microgravity				1998	1999	2000	2001	2002
Advanced Life Support	Plant	Effects of Altered Gravity on the Photosynthetic Apparatus		1996	1997	1998				
Advanced Life Support	Plant	Effects of Micro-G on Gene Expression in Higher Plants		1996	1997	1998	1999			
Advanced Life Support	Plant	Genetically Engineered Plant Biomonitor in Microgravity	1995	1996	1997	1998	1999	2000		
Advanced Life Support	Plant	Graviperception in Starch Deficient Plants in Biorack	1995	1996	1997	1998				
Advanced Life Support	Plant	Gravitational Effects of Embryogenesis in Poaceae			1997	1998	1999	2000	2001	
Advanced Life Support	Plant	Gravitropism and Autotropism in Cress Roots	1995	1996	1997	1998				
Advanced Life Support	Plant	Gravity Effects on Seedling Morphogenesis			1997	1998	1999	2000		
Advanced Life Support	Plant	Gravity Induced Changes in Gene Expression During Cotton Fiber Development (This Task Began in 2001)						2000	2001	2002
Advanced Life Support	Plant	Gravity-Induced Changes in Gene Expression in Arabidopsis	1995							
Advanced Life Support	Plant	Gravity-Induced Changes in Gene Expression in Arabidopsis			1997	1998	1999	2000		
Advanced Life Support	Plant	Greenhouse	1995	1996						
Advanced Life Support	Plant	Greenhouse (III): Gas-Exchange and Seed-to-Seed Experiments on the Russian Space Station MIR			1997	1998	1999			
Advanced Life Support	Plant	Lignin Formation and Effects of Microgravity: a New Approach	1995	1996	1997	1998				
Advanced Life Support	Plant	Microgravity Effects on Early Reproductive Development in Plants	1995							
Advanced Life Support	Plant	Microgravity Effects on Pollination and Fertilization		1996	1997	1998				
Advanced Life Support	Plant	Optimization of Root Zone Substrates for Reduce Gravity Experiments								2002
Advanced Life Support	Plant	Photosynthesis and Metabolism of Super Dwarf Wheat in Microgravity			1997	1998	1999	2000	2001	2002
Advanced Life Support	Plant	Plant Embryos and Fidelity of Cell Division in Space	1995	1996	1997					
Advanced Life Support	Plant	Regulation of Cell Wall Polymers by Microgravity	1995							
Advanced Life Support	Plant	Relationship of Morphogenesis and Mineralization to Gravitaxis in Spaceflown Algae			1997	1998	1999	2000	2001	2002
Advanced Life Support	Plant	Somatic Embryogenesis of Orchardgrass in Microgravity	1995							
Advanced Life Support	Plant	Space Experiment on Tuber Development & Starch Accumulation for CELSS			1997	1998				
Advanced Life Support	Plant	Starch Metabolism in Space-Grown Soybean Seedlings	1995	1996						
Advanced Life Support	Plant	The Interaction of Microgravity and Ethylene on Soybean Growth and Metabolism		1996	1997	1998				
Advanced Life Support	Plant	Transgenic Plant Biomonitor of Space Flight Exposure (This Task began in FY2000)					1999	2000	2001	2002
Advanced Life Support	Plant	Use of Induced-Fluorescence Imaging and Green Fluorescent Proteins to Monitor the Health of Plants under Simulated Martian Environments; Use of Induced-Fluorescence Imaging and Green Fluorescent Proteins to Monitor the Health of Terrestrial Plants under Simulated Martian Environments								
Advanced Life Support	Water	Advanced Water Recovery Systems							2001	
Advanced Life Support; Environmental Health	Water	Collecting Mir Source & Reclaimed Waters for Postflight Analysis	1995	1996	1997	1998	1999			
Advanced Life Support	Water	Rotation Membrane Water Purification for Long-Term Human Presence in Space					1999	2000	2001	
Advanced Life Support	Water / Air	Magnetic Air-Water Separation Technology				1998	1999			